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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,788	03/26/2004	Shuichi Hirukawa	204552032700	7156
<div>7590 Barry E. Bretschneider Morrison & Foerster LLP Suite 300 1650 Tysons Boulevard McLean, VA 22102</div>			<div>EXAMINER VAN ROY, TOD THOMAS</div>	
			ART UNIT	PAPER NUMBER
			2828	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/22/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/809,788

Applicant(s)

HIRUKAWA ET AL.

Examiner

Tod T. Van Roy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-11 is/are pending in the application.
4a) Of the above claim(s) 10 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1,4-9 and 11 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The examiner acknowledges the amending of claim 1 and the cancellation of claims 2-3.

Response to Arguments

Applicant's arguments filed 11/02/2006 have been fully considered but they are not persuasive.

The applicant has stated that the addition of the GaAs layers of Uchida to the 760-800nm emitting device of Hirukawa would not have been obvious due to GaAs being absorptive in this wavelength range.

The examiner agrees with the applicant that GaAs is absorptive in the stated 760-800nm range, but does not agree that the addition of the layers to Hirukawa would not have been obvious. Hirukawa's 780nm band device's layers are taught to be III-V aluminum (Al) containing and to abut a III-V phosphorous containing layer (Hirukawa, [0057]). Uchida's 1um emitter disclosure teaches that III-V Al containing layers abutting III-V P containing layers can improve their crystallinity via insertion of thin GaAs separating layers (Uchida, col.3 lines 26-31). These GaAs layers of Uchida are taught to be in the 7-10 angstrom range.

One of ordinary skill in the art would recognize that GaAs layers of that thickness would not absorb a significant amount the 780nm light produced by Hirukawa's device. Additionally, one of ordinary skill in the art would recognize the substantial advantages being taught by Uchida's use of the GaAs separating layers. Therefor, one of ordinary

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skill in the art would have a reasonable expectation of success in combining these two teachings. For these reasons it is believed that the previous rejection to the claims in view of Hirukawa and Uchida are correctly motivated and valid.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 4-9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirukawa (US 2003/0048825) in view of Uchida (US 5751753).

With respect to claim 1, Hirukawa teaches a semiconductor laser device in which, on a GaAs substrate (fig.2 #101), there are stacked in sequence at least a lower guide layer (fig.2 #104), an InGaAsP quantum well active layer (fig.2 #105) composed of one or a plurality of well layers and a plurality of barrier layers alternately disposed ([0057]) and an upper guide layer (fig.2 #106), wherein the semiconductor laser device

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has an oscillation wavelength of larger than 760nm and smaller than 800nm (abs.).

Hirukawa additionally teaches the active region to be of a III-V type containing Phosphorus (P) and the guide layers to be of a III-V type containing aluminum (Al) ([0057]). Hirukawa does not teach an interface protection layer between the quantum well active layer and at least one of, or both, guide layers. Uchida teaches a semiconductor laser in which the benefits of separating an Al containing layer from a P containing via the use of a thin (figs.7B/8B, about 5 angstroms) GaAs layer (col.3 lines 26-31). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the Al and P containing layers of Hirukawa with the thin GaAs separating layer of Uchida in order to prevent degradation of crystallinity (Uchida, col.3 lines 26-31).

With respect to claims 4-5, Hirukawa teaches the upper and lower guide layers to be of AlGaAs and the Al mole fraction to be greater than 0.2 ([0057]).

With respect to claims 6-7, Hirukawa teaches the well layer to have compressive strain, and for the value to be not more than 3.5% ([0067]).

With respect to claims 8-9, Hirukawa teaches the barrier layers to have tensile strain, and for the value to be not more than 3.5% ([0069]).

With respect to claim 11, Hirukawa teaches the laser device to be used in an optical disc unit (fig.7).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tod T. Van Roy whose telephone number is (571)272-8447. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TVR



**MINSUN OH HARVEY
PRIMARY EXAMINER**